GSAS 3.1 Release Notes

Branch CR20020830-001 and CR20020830-002 contain the following updates:

(GLA02) The calculation of the number of SPCM's enabled (from the SPCM status byte) was included. Prior versions assumed all 8 SPCM's were functioning.

(GLA02) Dead time correction tables were added for each individual SPCM (prior versions had one dead time correction table). Code was added that computed the appropriate dead time correction based on theses new tables and which SPCM's are enabled.

(GLA02) Changed normalization of 532 channel from using pin E (laser energy monitor) to pin A (value of laser energy after going through etalon).

(GLA02) 1064 cloud digitizer signal droop correction was added.

(GLA09) The addition of routines to find cloud layers using the 1064 data,. These cloud layers are appended to any that are found from the 532 channel.

(GLA11) Changed the units of the estimated range delay due to multiple scattering from nanoseconds to millimeters. Added the parameter "range delay due to multiple scattering uncertainty"

The correction of a bug in the 20 second buffering that produced invalid times when there was a data gap. This affected all level 2 products.

Branch PR20021204-001 contains the following updates:

The cloud digitizer attenuation setting was not decoded from the telemetry byte. Code was added to decode this byte and apply the proper attenuation setting correction to the data.

Branch CR20021023-003 contains the following updates:

Implemented instrument state. Default instrument state be provided by ANC33. Changed ANC33 format to support this. State is updated in the L1A Manager based on available APIDs. Changed states are recorded in the exec_lib/inst_state_mod.f90 . Added instrument_state_date and instrument_state_time to ANC45 file and associated ESDTs. (CR 20021023-003)

Implemented code to convert from char19 to J2000 times.

Added code to pass-thru instrument state from prior granules.

Implemented routines to update timing_bias and range_bias in header/metadata. Added date/times for each bias to the ANC45 files and associated ESDTs.

Added code to update internal range/time delays and osc rates in headers.

Fixed problems in APID55 coding (CR20021106-003).

Straightened out energy calculation variables per meeting with Hancock. Changed gain parameters for energy calculation (CR20021107-002).

Found a bug whereby if the actual number of header records on a product was less than the estimated number of header records, the header fields contained the actual, not estimated, and one or more empty header records were left in the product. Fixed this by making the value in the header the estimated number of header records.

Also fixed a potential problem with empty product files by calling the header write routines immediately after initialization.   (CR20021104-004/CR20020923-001)

Made the L1A (GLA01/GLA02) manager respect the start/stop time of the output file when creating QAP data (PR20021118-002).

Updated to revC of the PRAP packet. Changed structure of GLA0406 (need to fix database!). Modified L_Att to use the ADCS_VTCW for GLA06 UTCtime computation. (CR20021030-001/CR20021025-003)

Fixed filename parsing routines to recogning the ANC39 file naming convention requested by UTexas (CR20021107-001).

Removed QA information from the product headers. (CR20021104-005; Second part of this CR, to change GLAS_Meta to update the QA based on metadata, is TBD)

Handled unsigned values within L_Att for VT centroid row/col in LRS and IST data (PR20021126-002).

Branch CR20021106-002 contains the following fixes:

Updated the L_Eng code to match the updated Version 1.1 L1A ATBD. Both the L_Eng code and the L1A constants file were updated to match the L1A ATBD modifications.

Branch CR20021205-001 contains the following fixes:

Cleaned up GLA04-01, GLA04-03, GLA04-04, and GLA04-06 variable definitions and structure formats (CR20021205-001).

Modified the timetag rollover algorithm to give better LRS/IST alignment results. Fixed a case where the lrs_coi was being used when the ist_coi should have.

Branch scantime contains the following:

Created a new product utility PGE, scantime, to assist in the maintenace of anc33. The utility will read anc29 (created by GLAS_L0proc) and APIDs 19, 20, 21, 24, and 55. It will scan the data for differences between times computed by GPS correlation and those estimated by MET. It will also detect any changes to the instrument state variable. If a change in the time difference or instrument state is detected, it will write a record to an output ANC33 file.

Branches   wcr20020918-001, cr20020918-001, wpr20021002-001, and pr20021002-001 contain the following:

In general this modification was intended to go over all common flags and to verify and/or rectify the setting of those flags to valid values in all phases of the GLAS products. There still exist numerous "options" in the data that are not yet realized, and in these cases the default values have been appropriately set. An effort was made to standardize the presentation of all product software and flags, especially so in the formulation of algorithm flags as arrays of individual flags rather than byte-compacted single variables as used in the product phase of the data processing. This removes the bit-checking complexities from the main stream of data processing and centralizes all such functionalities into the *common_flags_mod.f90* code. It can be generalized that very small changes were made to a large number of modules, as evidenced by the 55 modules involved in the effected branches. The timecorflg was propagated to all products.

Branch cr20021118-001 contains the following:

This branch added the beam parameters to the product files for GLA05-15. No code was added to compute these parameters or to transfer value, but rather to just create places for the data to exist in future versions of the software. Structures in the alg and prod modules were modified, utilizing some of the spare bits in the prod modules. The scal modules were given the conversion software to allow transference between prod and alg variables. The atmosphere manager and buffering module required changes because one variable was deleted in the atmospheres product list to make way for the beam_coelev and beam_azimuth parameters.

Branch 20021205-001 contains the following:

Modified the GLA04 scales/formats as requested in the CR. Found a problem in the timetag rollover scheme which hurt alignment results. Significantly improved IST and LRS alignment with corrected algorithm.

Branch 20021213-001 contains the following:

GLAS_L0proc will create an ANC32 file from PRAP if no APID19 is available (CR20021213-001). Changed GLA02-04 VTCentR/VTCentrC units from pixels to arc-

seconds (CR20021213-003). Fixed a merge problem with the ANC04-06 GPS_Latch and GPS_Time text output.